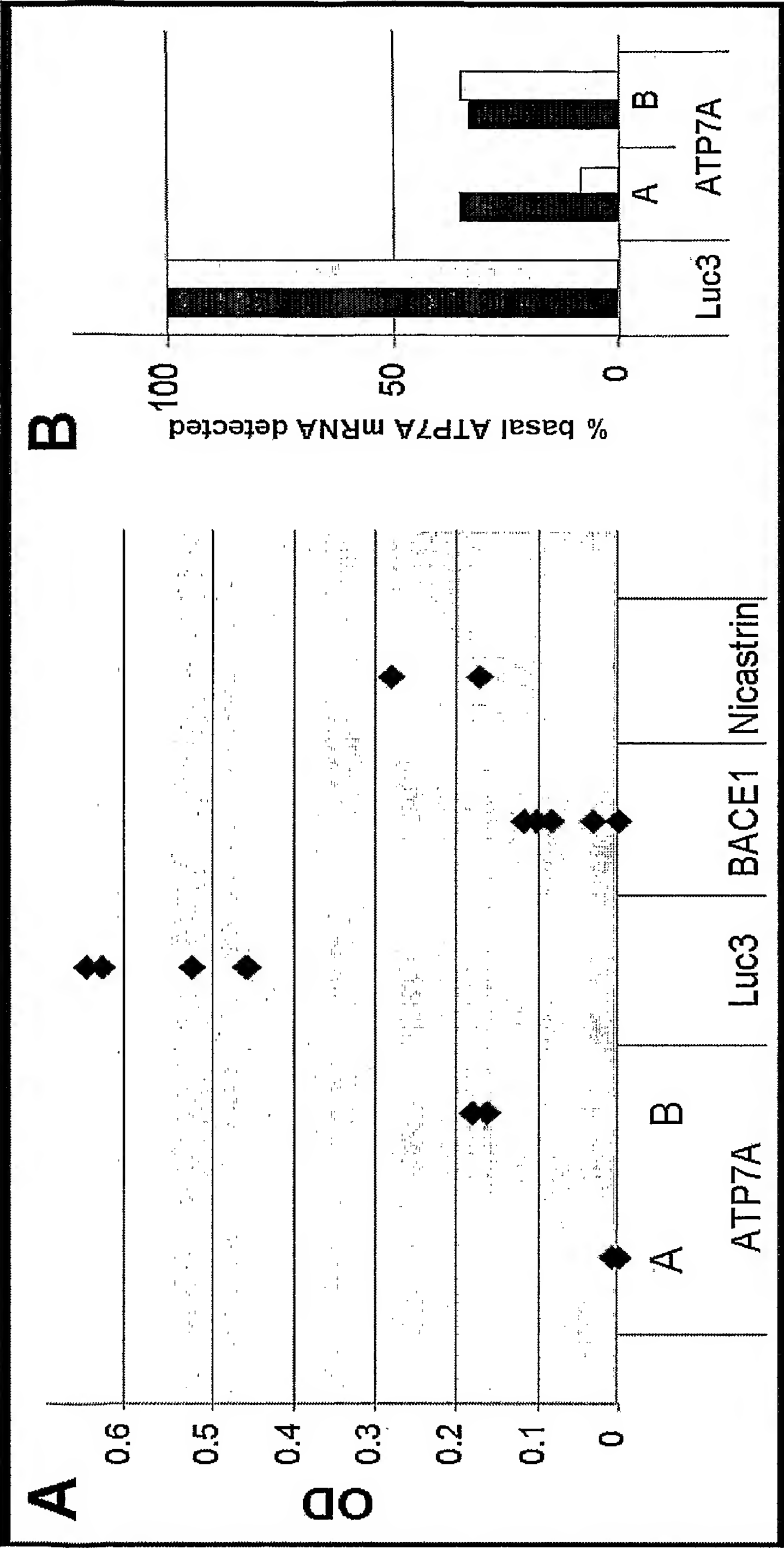


Figure 1:



**Figure 2:**

MRKLSIRKRD	NNLLKPSSAS	SLGIAVSLGR	PVLSRSSSGT	VNLLEEVGLH
IRDTAFSSTK	LLEAISTVSA	QVEELAVHNE	CYDPSMGVNS	VTISVEGMTC
NSCVWTIEQQ	IGKVNGVHHI	KVSLEEK NAT	IIYDPKLQTP	CTLQEAIIDM
GFDAVIHNP	PLPVLTDTLF	LTVTASLTLP	WDHIQSTLLK	TKGVTDIKIY
PQKRTVAVTI	IPSIVNANQI	KELVPELSLD	TGTLEKKSGA	CEDHSMAQAG
EVVLKMKVEG	MTCHSCTSTI	EGKIGKLQGV	QRIKVS LDNQ	EATIVYQPHL
ISVEEMKKQI	EAMGFPAFVK	KQPKYLKLGA	IDVERLKNTP	VKSSEGSQQR
SPSYTNDSTA	TFIIDGMHCK	SCVSNIESTL	SALQYVSSIV	VSLNRSIAIV
KYNASSVTPE	SLRKAIEAVS	PGLYRVSITS	EVES TSNSPS	SSSLQKIPLN
VVSQPLTQET	VINIDGMTCN	SCVQSIEGVI	SKKPGVKSIR	VSLANSNGTV
EYDPLLT SPE	TLRGAIEDMG	FDATELSDTNE	PLVVIAQPSS	EMPLLTSTNE
FYTKGMT PVQ	DKEEGKNSSK	CYIQVTGMT C	ASCVANIERN	LRREEGIYSI
LVALMAGKAE	VRYNPAVIQP	PMIAEFIREL	GFGATVIENA	DEGDGVLELV
VRGMTCASCV	HKIESSLTKH	RGILYCSVAL	ATNKAHIKYD	PEIIGPRDII
HTIESLGFEA	SLVKKDRSAS	HLDHKREIRQ	WRRSFLVSLF	FCIPVMGLMT
YMMVMDHHFA	TLHHNQNM SK	EEMINLHSSM	FLERQILPGL	SVMNLLS FLL
CVPVQFFGGW	YFYIQAYKAL	KHKTANMDVL	IVLATTIAFA	YSLIILLVAM
YERAKVNPIT	FFDTPPMLFV	FIALGRWLEH	IAKGKTSEAL	AKLISLQATE
ATIVTLDS DN	ILLSEEQVDV	ELVQRGDI IK	VVPGGKFPVD	GRVIEGHSMV
DESLITGEAM	PVAKKPGSTV	IAGSINQNGS	LLICATHVGA	DTTLSQIVKL
VEEAQTSKAP	IQQFADKLSG	YFVPFIVFVS	IATLLVWIVI	GFLNFEIVET
YFPGYNRSIS	RTETIIRFAF	QASITVLCIA	CPCSLGLATP	TAVMVG TGVG
AQNGILIKGG	EPLEMAHKVK	VVVF DKTGTI	THGTPVVNQV	KVLTESNRIS
HHKILAI VGT	AESNSEHPLG	TAITKYCKQE	LDTETLGTCI	DFQVVP GCGI
SCKVTNIEGL	LHKNNWNIED	NNIKNASLVQ	IDASNEQSST	SSSMIIDAQI
SNALNAQQHK	VLIGNREWMI	RNGLVINNDV	NDFMTEHERK	GRTAVLVAVD
DELCGLIAIA	DTVKPEAELA	IHILKSMGLE	VVLMTGDNSK	TARSIASQVG
ITKVFAEVLP	SHKVAKVKQL	QEEGKRVAMV	GDGINDSPAL	AMANVGIAIG
TGTDVAIEAA	DVVLIRNDLL	DVVASIDLSR	KTVKRIRINF	VFALIYNLVG
IPIAAGVFMP	IGLVLPQWVG	SAAMAASSVS	VVLSSLFLKL	YRKPTYESYE
LPARSQIGQK	SPSEISVHVG	IDDTSRNSPK	LGLLDRIVNY	SRASINSLLS
DKRSLNSVVT	SEPDKHSLLV	GDFREDDDTA	L	

**Figure 3:**

ATP7A	MRKLSIRKRDNNLLKPSSASLGIASVSLGRPVLSRSSSGTVNLLVEEVLHIRDIAFSSTKLLLEAISTVSAQVEELAVHNE
ATP7B	-----MPEQERQITAREGAS-----RKILSKLSLPTR-----AWEPAMKKSEAFDNVGYEGG-----LD
Consensus/80%	.....b.cp-pplh..ptAS.....R.lLS+.S.st.....hb-sAbpp*bhb-slth.tt.....-
ATP7A	CYD <sup>*</sup> SMGVNSVTISVEGMCNSCVWTL <sup>*</sup> EQIGKVNGVHHIKVSLEEK <sup>*</sup> NATIIYD <sup>*</sup> KLQTPKTLQEATDDMGFD <sup>*</sup> DAVINPD
ATP7B	GLG <sup>*</sup> SSQVATSTVRI <sup>*</sup> LGMT <sup>*</sup> CQSCVKSIEDRISNLKGIISM <sup>*</sup> KVSLEQDSAT <sup>*</sup> VKV <sup>*</sup> SVVCLQQVCHQIGDMGFEASIA---
Consensus/80%	sbsPS..Vs*sTlplbGMTCPSCVb*IEppItplpGlbpbKVSLEpCSAtlbYsPpl.s.pplpc.IsDMGF-AsIh...
ATP7A	PLPVLTDTLFLTVTASLTLPWDHIQSTLLKTKGVTDIKIYPQKRTVAVTIIPSI <sup>*</sup> VNANQIKELVPELSLDTGTLEKKSGA
ATP7B	-----EGKAAS
Consensus/80%	.....E.Kttt
ATP7A	CEDHSMAGAGEVVLKMKVEGMC <sup>*</sup> HSCTSTIEGKIGKLQGVQRIKVS <sup>*</sup> LDNQEATIVYQ <sup>*</sup> HLISV <sup>*</sup> EMKKQIEAMGF <sup>*</sup> PAFVK
ATP7B	WPSRSLP-AQEAVVRLRVEGMC <sup>*</sup> CQSCVSSIEGKVRKLG <sup>*</sup> VVRVKVSLNQEAVITYQ <sup>*</sup> YLQPEDLRDHVNDMGFEAAIK
Consensus/80%	h.s+Sbs.A.EsVlKb+VEGMCpSCsS*IEGKl.KLQGV.RlKVSLSNQEAsIsYQPaLIpsE-b+cplpsMGF.AhIk
ATP7A	KQPKYLKLGATDVERLKNL-----VKSSEGSQQRSPSYTND <sup>*</sup> S-----TATFIIDGMHCKSCVSNIESTLSALQYVSSIVS
ATP7B	SKVAPLSLGPIDIERLOS <sup>*</sup> INPKR <sup>*</sup> LSSANQNFNNSETLGHQGS <sup>*</sup> HVVTLQLRIDGMHCKSCVNLTEENIGOLLGVOSIOVS
Consensus/80%	pps..LpLGsIDlERLpsT....PlpStp.sbpps.*bsppt....ThpbIDGMHCKSCV.NIEpslt.LbhVpSI.VS
ATP7A	LENRS <sup>*</sup> AIVK <sup>*</sup> NASSVT <sup>*</sup> ESLRKAIEAVS <sup>*</sup> GLYRV <sup>*</sup> SITSEVES--TSNSPSSSSLOKI <sup>*</sup> LNVVSQPLTQETVINIDGMTCN
ATP7B	LENKTAQVKYDPSC <sup>*</sup> TS <sup>*</sup> VALQRAIEALP <sup>*</sup> G <sup>*</sup> NFKVSLPDGAEGSGTDHRS <sup>*</sup> SSSSHPGS <sup>*</sup> PRNQVQGTCTSTLLIATAGMTCA
Consensus/80%	LEN+*AbVKYssSss*P.tLp+AIEAlsPG.a+VSls.sEt..TsppsSSSp....P.ps.sQshsppTllsIsGMTCS
ATP7A	SCVQSIEGVISK <sup>*</sup> PKPVKS <sup>*</sup> IRVSLANSNGTVEYD <sup>*</sup> LLTS <sup>*</sup> ETLRGATEDMGFDATLSDTNEPLVVIAQPSSEMPLLTSTN-
ATP7B	SCVHSIEGMLSQLEGVQQTISVSLAEGTATVLYN <sup>*</sup> SVIS <sup>*</sup> EELRAATEDMGFEASVSESCSTNPLGNHSAGNSMVQ <sup>*</sup> TDG
Consensus/80%	SCVpSIEGhIsPb.GVppIpVSLAptstTVbYsP.lhSPEpLrtAIEDMGF-A*lspspsshssltP.St..sblp*Ts.
ATP7A	-EFYTKGMT <sup>*</sup> VQDKEEGKNS-----SKCYIQVTGMTASCVANIERNLRRREGIYSILVALMAGKAEVR
ATP7B	TPTSVQ <sup>*</sup> EVATHTGRLPANHAPDILAKSPQSTRAVAPQKCFLOIKGMTASCVSNIERNLQKAGVLSVLVALMAGKAEIK
Consensus/80%	..h.sp.hsPhps+b.tppt.....pKCalQlpGMTASCVtNIERNLp+E.GlbSllVALMAGKAEI+
ATP7A	YN <sup>*</sup> AVIQ <sup>*</sup> PMIAEFFIRELGE <sup>*</sup> GATV <sup>*</sup> ENADEGDGVLELVVRGMTASC <sup>*</sup> CVKIESSLTKHRGILYCSVALATNKAHIKYD <sup>*</sup> E
ATP7B	YD <sup>*</sup> EVIO <sup>*</sup> LEIAQFIQDLGEFAAVMEDYAGSDGNIELTITGMTASC <sup>*</sup> VHNIESKLT <sup>*</sup> RNGITYASVALATSKALVKFD <sup>*</sup> E
Consensus/80%	YsP.VIQP.biApFIp-LGF.AsVbEshs.tDGslELslpGMTASCVHpIESpLT+ppGIhYsSVALATsKAbIKadPE
ATP7A	IIG <sup>*</sup> RDIIHTTESLGFEASLVKKORSASHLDHKREIRQWRRSFLVSLFFCT <sup>*</sup> VMGLMTYMMVMDHHFATLHHNQNSKEE
ATP7B	IIG <sup>*</sup> RDIIKIIIEIG <sup>*</sup> HASIAQRNPNAHLDHKMEIKQWK <sup>*</sup> SFLCSLVEGI <sup>*</sup> VMALMTYMLIPSN-----
Consensus/80%	IIGPRDII+hIEpIGFCASLsp+s.sApHLDHKbEI+QW++SFLsSLhFsIPVmtLMhYmbI.sp.....
ATP7A	MINLHSSMFLERQIL <sup>*</sup> GLSVNLLSEFLLCVPVQFFGGWYFYIQA <sup>*</sup> YKALKHKKTANMDVLIVLAT <sup>*</sup> TIAFAYSLLIILLVAMYB
ATP7B	--EPHOSMVL <sup>*</sup> DHNIIL <sup>*</sup> GLSILNLIFFILCTFVQLLGGWYFYVQA <sup>*</sup> YKSLRHSANMDVLIVLAT <sup>*</sup> SIAYVYSLVILVAVAE
Consensus/80%	..p.HpSMhL--+pIlPGLSibNLl.FllCs.VQbbGGWYFYlQAYKtL+H+*ANMDVLIVLAT*IAasYSLlILlVAhHE
ATP7A	RAKVN <sup>*</sup> ITFFDT <sup>*</sup> MLFVFIALGRWLEHIAKGTSEALAKLISLOATEATIVLDSNILLSEEQVDVELVORGDI <sup>*</sup> IKV
ATP7B	KAERS <sup>*</sup> VTFEDT <sup>*</sup> MLFVFIALGRWLEHIAKGTSEALAKLISLOATEATVTLGEDNLTIREEOVPELIVORGDI <sup>*</sup> IKV
Consensus/80%	+Ac.sPlTFFDTPMMLFVFIALGRWLEHIAKtKTSEALAKLbSLQATEATIVTLspDNlIlpEEQVshELVORGDI <sup>*</sup> IKV
ATP7A	GGKF <sup>*</sup> VDGRVIEGHSVDES <sup>*</sup> LITGEAM <sup>*</sup> VAKK <sup>*</sup> GSTVIAGSINQNGSLITCATHVGADTTL <sup>*</sup> SOIVKLVEEAQTSKA <sup>*</sup> IQ
ATP7B	GGKF <sup>*</sup> VDGKYLEGNTMADES <sup>*</sup> LITGEAM <sup>*</sup> VTKK <sup>*</sup> GSTVIARSINAHGSVLIKATHVNDTTL <sup>*</sup> AOIVKLVEEAQMSKA <sup>*</sup> IQ
Consensus/80%	PGGKFPVDG+VIEGp*MsDES <sup>*</sup> LITGEAMPVSKKPGSTVIA.SIN.pGSILIpATHVGSDTTLtQIVKLVEEAQhSKAPIQ
ATP7A	QFADKLSGYFV <sup>*</sup> FIVFVSATLLVWIVIGF <sup>*</sup> INFEIVET <sup>*</sup> YFGYNRSISRTETIIRFAFQASITVLCIAC <sup>*</sup> CSLGLAT <sup>*</sup> TA
ATP7B	QLADRFSGYFV <sup>*</sup> FIIMSTLTLVWVWIVIGF <sup>*</sup> IDFGVQKYF <sup>*</sup> NPNKHISQTEVLIIRFAFQTSITVLCIAC <sup>*</sup> CSLGLAT <sup>*</sup> TA
Consensus/80%	QbAD+bSGYFVPFIlbhShhTLlVWIVIGFIsF.lVppYFPs.N+pISpTesIIRFAFQsSITVLCIACPCSLGLATPTA
ATP7A	VMVGTGVGAQNGILIKGG <sup>*</sup> LEMAHKV <sup>*</sup> KVVVFDKGTGTITHGT <sup>*</sup> VVNQVKVLTESNRISHHKILAVGTAESENSEH <sup>*</sup> LGTA
ATP7B	VMVGTGVAAQNGILIKGGK <sup>*</sup> LEMAHKIK <sup>*</sup> VMFDKGTGTITHGV <sup>*</sup> RVMRVLLGDVATLPLRKVLAVGTAEASSEH <sup>*</sup> LGVA
Consensus/80%	VMVGTGVtAQNGILIKGGcPLEMAHKlKsVhFDKGTGTITHGsP.V.pVblLs-ssplsb+KlLAlVGTAetsSEHPLGsA
ATP7A	ITKYCKQELDTETLGTCTDFQV <sup>*</sup> GCGISCKVTNIEGLLHKNNWNIEDNNIKNASLVQIDASNEQSSTSSSMIIDAQISN
ATP7B	VTKYCKEELGTETLGYCTDFQAV <sup>*</sup> GCGIGCKVSNVEGILAH <sup>*</sup> S-----ERPLSAPASHLNEAGSLPAEKDAVP--
Consensus/80%	ITKYCKpELsTETLGHChDFQsVPGCGItCKV*NIEGLh+s.....p.lphsASpbpptsS.shbbDA....
ATP7A	ALNAQQHVKVLIGNREWMIRNGLVINNDVND <sup>*</sup> EMTEHERKGR <sup>*</sup> TAVLVAVDDEL <sup>*</sup> CGLIATADTVKPEAELATHIILKSMGLEVV
ATP7B	----QTFSVLIGNREWLRRNGLTSSDVSDAMTDHEMKGTAILVAIDGVLCGMTATADAVKQEAALAVHTLQSMGVDVV
Consensus/80%	....QpapVLIGNREWbbrNGLsIssDVsdhMT-HEbKGPtALLVAldS.LCGbIAIADsVK.EA.LAlHhLpSMG1-VV
ATP7A	LMTGDN <sup>*</sup> SKTARSIASQVGT <sup>*</sup> TKVFAEVL <sup>*</sup> SHKVAKVQLQEEGKRVAMVGDGINDS <sup>*</sup> ALAMANVGIAIGTGTDAIEAADV
ATP7B	LITGDN <sup>*</sup> RKTARATATQVGINKVFAEVL <sup>*</sup> SHKVAKVQELQNGKGVAMVGDGVNDS <sup>*</sup> ALAQADMGAIGTGTDAIEAADV
Consensus/80%	LbTGDNpKTARtIA*QVGIsKVFAEVLPSHKVAKVppLQpcGK+VAMVGDGINDSPALAbAshGLAIGTGTDAIEAADV
ATP7A	VLIRNDLLDVVASIDL <sup>*</sup> SRKTVKRIRINEFALIYNLVGI <sup>*</sup> IAAGVFM <sup>*</sup> IGLVLO <sup>*</sup> WMGSAAMAASSVS <sup>*</sup> VVLSLFLKLYR
ATP7B	VLIRNDLLDVVASIHL <sup>*</sup> SKRTVRRIRINLVALIIYNLVGI <sup>*</sup> IAAGVFM <sup>*</sup> IGIVLO <sup>*</sup> WMGSAAMAASSVS <sup>*</sup> VVLSLQLKCYK
Consensus/80%	VLIRNDLLDVVASIcLS++TV+RIRINbVbALIYNLVGIPIAAGVFMPIGLVLQPMGSAAMAASSVS <sup>*</sup> VVLSLbLKHy+
ATP7A	K <sup>*</sup> TYESYELPARSQIGQKSPSEISVHVGIDDTSRNS <sup>*</sup> KLGLLDRIVNYSRASINSLLSDKRSLSNSVVTSEP-DKHSLLVG
ATP7B	K <sup>*</sup> DLERYEAQAHG <sup>*</sup> HKPLTASQSVHIGMDRW <sup>*</sup> DS <sup>*</sup> RATPWDQVSYSQVSLSSLSLSDKPSRHSAAADDDGDKWSLLIN
Consensus/80%	KPsbEpYeh.A+tpb..b*sSpSVHlGbDDp.RsSP+hs.bDpls.hSpSlsSLhSDK.SbpSssss-s.DKaSLLls
ATP7A	DFREDDDTAL
ATP7B	GRDEEQYI--
Consensus/80%	sbcE-p.h..